



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,333	10/06/2000	Hiroshi Kubo	1807-126A	3167
6449 7590 08/09/2007 ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			EXAMINER TRINH, SONNY	
			ART UNIT 2618	PAPER NUMBER
			NOTIFICATION DATE 08/09/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

09/685,333

Applicant(s)

KUBO, HIROSHI

Examiner

Sonny TRINH

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 13-19 is/are rejected.
- 7) ☐ Claim(s) 2 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Current Status:

1. This Office Action is in response to the amendment filed 05/24/07. Claims 1-10, 13-18 are pending (13-18 are newly added). Claims 11-12 are canceled.
2. Newly submitted **claims 13-18** directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 13-18 are drawn to a detail circuitry of a transmitter including filtering section, modulator to amplitude regulate the delayed signals and to synthesize the regulated signals with the modulated signals while claims 1-10 are drawn to the communication system for transmitting and for receiving in general.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13-18 are withdrawn from consideration as being directed to a non-elected invention. See 37 C.F.R. § 1.142(b) and M.P.E.P. § 821.03.

Response to Arguments

3. Applicant's arguments filed on 05/24/07 have been fully considered but they are not persuasive.

The following is the Examiner responses to applicant's argument that claims 1 and 8 are allowable over Kai:

The Applicant attempts to overcome the Kai reference by suggesting that "Kai fails to teach or suggest that signals transmitted from an antenna of one transmitter are delayed an arbitrary delay time and an output power, which is different from at least one delay output power in the other transmitters, is set, as recited by Claims 1 and 8. Instead, Kai merely discloses that "first and second transmitters transmits [sic] a common signal with first and second carrier waves of substantially identical frequency in respective radio zones" (Col. 1:56-59). Transmitter output power is simply not discussed. Consequently, Kai fails to teach or suggest all of the features recited by Claims 1 and 8. Moreover, none of the remaining references cures the deficiencies of Kai."

However, as shown in figure 2 and cited by the Examiner, signal output from antenna 26 is delayed by delay circuit 70 which is obviously different from at least one delay output power in the other transmitters (such as from antenna 16) and since different output signals from antenna 16 and 26 have different delays, the output powers are inherently different.

Therefore, the Examiner is not persuaded by the Applicant's arguments suggesting that the Kai does not teach all limitations as specified in claims 1 and 8.

The following is the Examiner responses to applicant's argument that claims 4 and 10 are allowable over Kai:

The Applicant attempts to overcome the Kai reference by suggesting that "Kai fails to teach or suggest that signals supplied to respective antennas are obtained by differently delaying modulated signals and carrying out weighting synthesization on the signals, where at least one of a delay amount and a weighting factor is set to a value different from the other transmitters, as recited by Claims 4 and 10".

Claims 4 and 10 were similarly rejected by the Examiner with the reasons set forth in the rejection of claim 1. However, since weighting synthesization or weight factor or weights or Beta-gains generally correspond to the relative transmitter power devoted to or applied to the respective channels and since Kai discloses different antenna with delayed signals, weight factor is an inherent factor in Kai's invention.

Therefore, the Examiner is not persuaded by the Applicant's arguments suggesting that the Kai does not teach all limitations as specified in claims 4 and 10.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In this case, the Applicant attempts to overcome the Kai and Solondz references by suggesting that "...Kai does not perform amplitude regulation on either signal transmitted by base station 1 or 2. Rather, as noted above, Kai's modulator 11 either frequency modulates an intermediate frequency with the signal or phase modulates the signal. Amplitude modulation is simply not disclosed. The Office Action apparently

Art Unit: 2618

agrees, and cites Solondz in support..."; Applicant suggested that "...Solondz discloses base stations 30 that have a transmitter with a non-delayed signal path and "N" delayed signal paths, where each of the delayed signal paths includes a delay element 32N and an amplifier 33N. Solondz fails to disclose that the value of the amplifying is different among amplifiers 330, 331, ... 33N..."

The Examiner, however, relied on Solondz for the teaching of the delay and amplitude regulation of the transmitters and not on Kai for the teaching of amplitude regulation on either signal transmitted by base station 1 or 2.

Therefore, the Examiner is not persuaded by the Applicant's arguments suggesting that the Kai and Solondz references do not meet all the limitations of claim 6.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, 8, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kai et al. (hereinafter "Kai"; U.S. Patent number 4,490,830).

Regarding **claim 1**, with reference to figure 2 (column 3 line 57 to column 4 line 17), Kai discloses a radio communication system (please summary of the invention) comprising:

a plurality of transmitters each having at least one antenna for transmitting identical signals with the same frequency band (figure 2, antenna 16, 26, with signal originated from identical signal generator 30, (please see abstract) and

a receiver for receiving said signals (inherent), wherein, said signals being transmitted from said at least one antenna of one transmitter of said plurality of transmitters is delayed an arbitral delay time so that output power which is different from at least one delay output in the other transmitters is set in each of said plurality of transmitters (figure 2, signal output from antenna 26 is delayed by delay circuit 70, see column 1 lines 8-26, column 4 line 61 to column 5 line 5)) .

Regarding **claim 4**, this claim is interpreted and rejected for the same reasons as given in the rejection of claim 1 above.

Regarding **claim 8**, Kai further discloses a transmitter (figure 2) characterized in that in the case where a plurality of transmitters transmit same signals with same frequency band (abstract, column 1 lines 8-26), at least one antenna is provided, and an arbitrary delay (figure 2, delay 70) is given to said antenna so that an output power which is different from at least one delay output in the other transmitters is set (RF amplifiers 15 and 25 are obviously have different output powers, see column 2 line 52 to column 4 line 17).

Regarding **claim 10**, this claim is interpreted and rejected for the same reasons as given in the rejection of claim 8 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 3, 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kai.

Regarding **claims 3, 5**, Kai discloses the invention but does not disclose that a receiver comprises an equalizer for demodulating a signal transmitted from at least one antenna in each of the transmitters. However, demodulator as well as equalizer are essential elements in a receiver for demodulating a demodulated signal and for the purpose of adjusting the amplitude and phase characteristics of the demodulated image signal. The use of the demodulator and equalizer are therefore obvious and well within the level of a person of ordinary skill in the art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 6-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kai in view of Solondz (U.S. Patent Number 6,259,730 B1).

Art Unit: 2618

Regarding **claim 6**, Kai discloses the invention but does not explicitly disclose that said signals being supplied to said plurality of antennas are obtained by differently delaying modulated.

In an analogous art, Solondz teaches a transmit diversity and reception equalization for radio links (abstract). Solondz further teaches the different delay modules which obviously have different value of amplitude regulation (gain) (figure 6, column 4 lines 8-57).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate the different delay modules, as taught by Solondz, into the system of Kai in order to compensate for the known distortion in a manner which provides improved signal gain. The improved signal gain permits a reduction in transmit power and, accordingly, increased capacity of the base station.

Regarding **claim 7**, the combination of Kai and Solondz discloses the invention but does not disclose that a receiver comprises an equalizer for demodulating a signal transmitted from at least one antenna in each of the transmitters. However, demodulator as well as equalizer are essential elements in a receiver for demodulating a demodulated signal and for the purpose of adjusting the amplitude and phase characteristics of the demodulated image signal. The use of a demodulator and equalizer are therefore obvious and well within the level of a person of ordinary skill in the art.

Allowable Subject Matter

8. **Claims 2 and 9** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claims 2 and 9**, the applied references fail to disclose or render obvious the claimed limitations specifically wherein when different delays as the arbitrary delays are given to a plurality of antennas, a combination of output powers which is different from corresponding delay outputs in the other transmitters is set.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

Art Unit: 2618

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed URBAN can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7/28/07


SONNY TRINH
PRIMARY EXAMINER